

Constellations

- North Circumpolar
- Ursa Major (Alcor/Mizar)
 - Ursa Minor (Polaris)
 - Draco
 - Cassiopeia
 - Cepheus

- Spring
- Leo
 - Cancer
 - Gemini (Castor & Pollux)
 - Canis Minor (Procyon)
 - Canis Major (Sirius)

- Summer
- Hercules
 - Corona Borealis
 - Scorpius (Antares)
 - Libra
 - Virgo (Spica)
 - Bootes (Arcturus)

- Late Summer / Early Fall
- Cygnus (Deneb)
 - Lyra (Vega)
 - Aquila (Altair)
 - Capricornus
 - Sagittarius

- Late Fall / Winter
- Pegasus
 - Andromeda (M31)
 - Delphinus
 - Auriga (Capella)
 - Taurus (Aldebaran)
 - The Pleiades
 - Orion (Betelgeuse/Rigel/M42)
 - Perseus (Algol)

• Constellations are recognizable patterns of stars in the sky - used to help partition the celestial sphere

- have defined borders
- many stars w/in constellation borders do not help create the pattern itself
- The International Astronomical Union recognizes 88 constellations between both hemispheres
- Constellations that lie partly on the ecliptic are the zodiac constellations

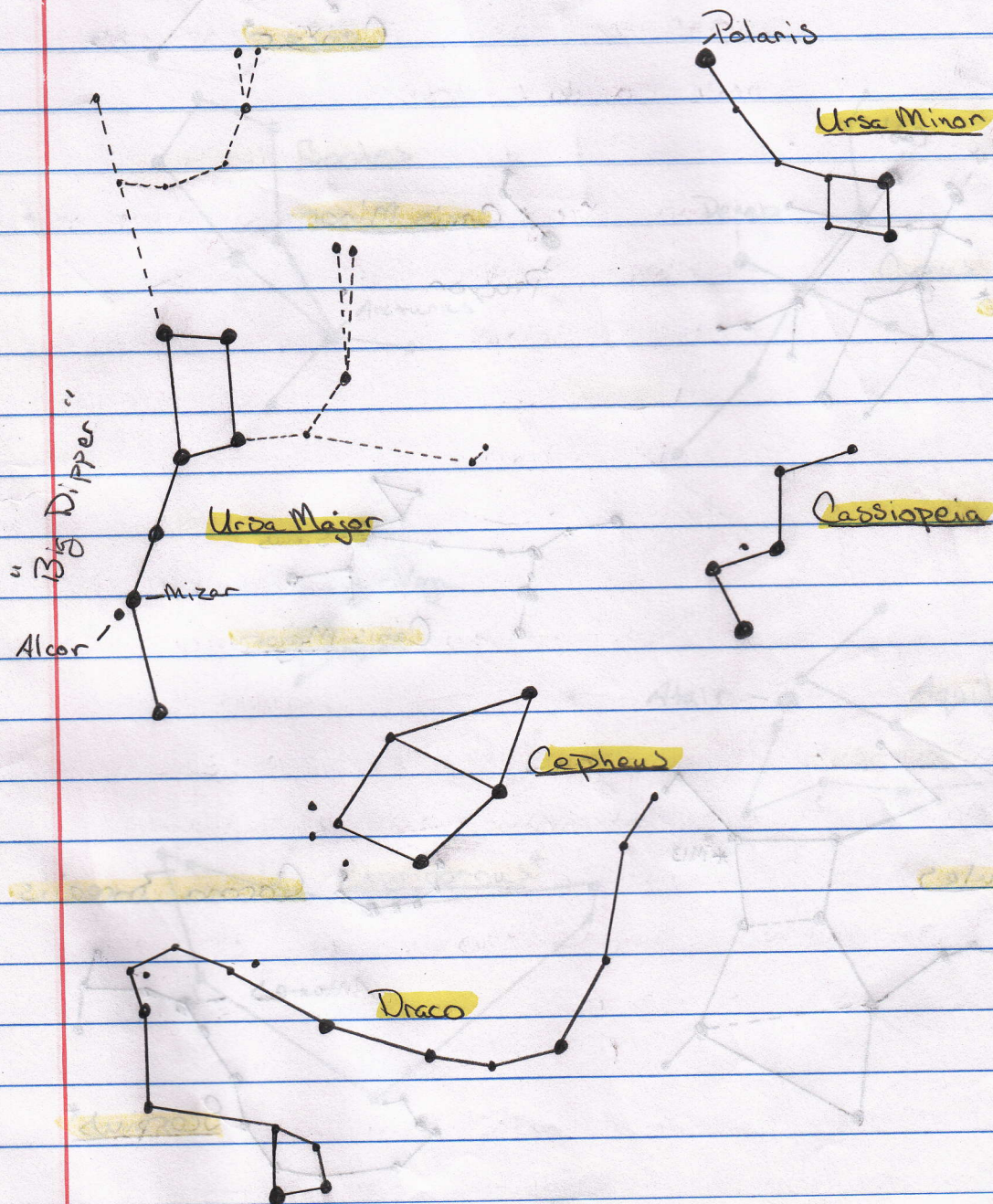
*Ophiocruz - Pices - Cancer - Scorpius
- Aries - Leo - Sagittarius
- Taurus - Virgo - Capricornus
- Gemini - Libra - Aquarius

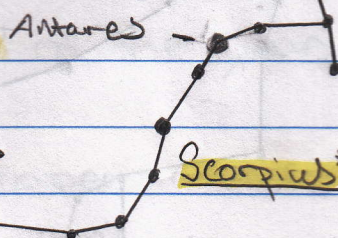
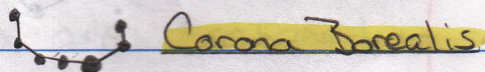
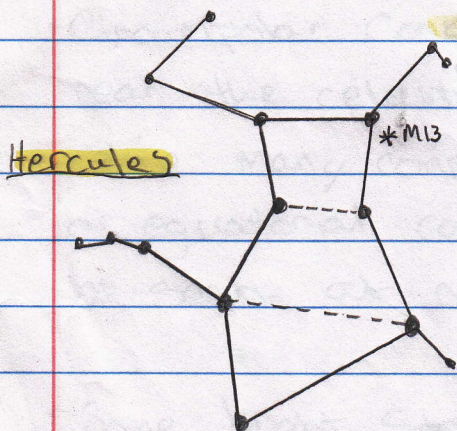
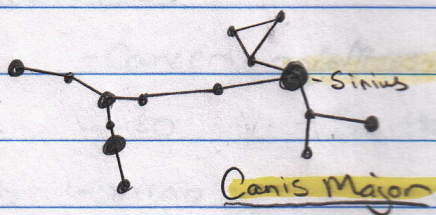
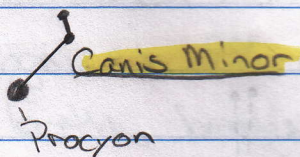
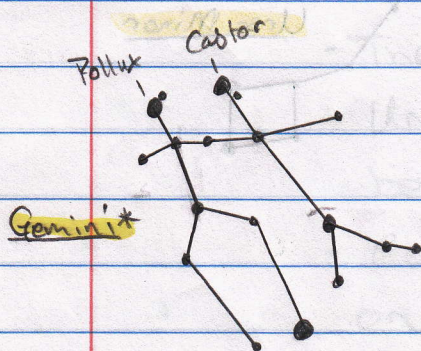
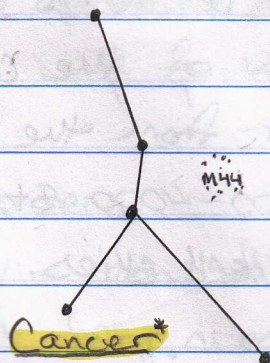
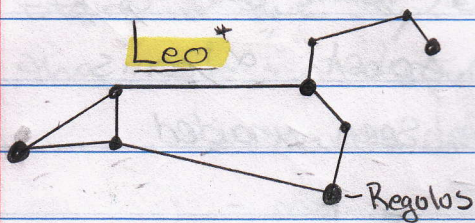
• Circumpolar Constellations can be seen near the celestial poles all year round while many constellations are seasonal or equatorial constellations and can only be seen at certain times of the year.

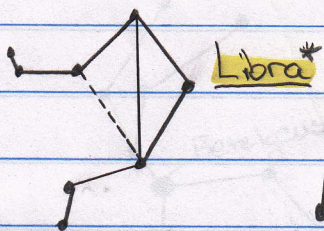
• Some bright stars have proper names given to them long ago - but all stars

can be named using the possessive latin form of the constellation name and a letter from the Greek alphabet, " α Leonis"

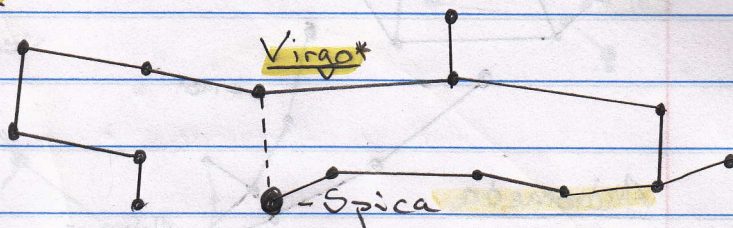
* 2000-4000 stars can be seen unaided in dark skies





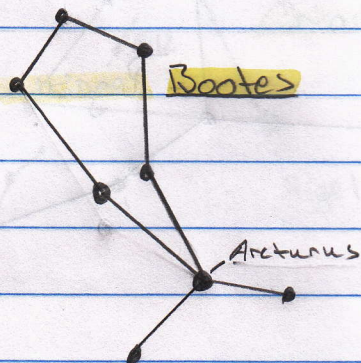


Libra*



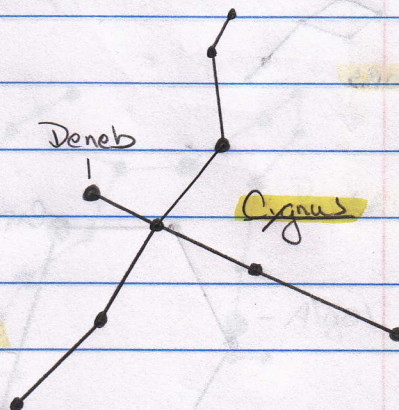
Virgo*

- Spica



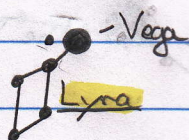
Boötes

Arcturus



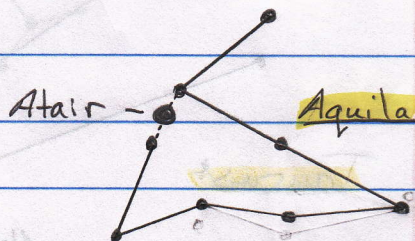
Deneb

Cygnus



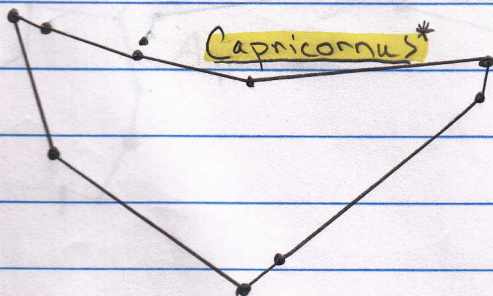
- Vega

Lyra



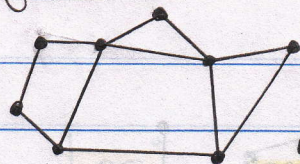
Altair

Aquila



Capricornus*

Sagittarius*

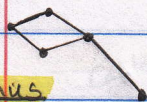


* M51

Andromeda

Alpheratz

Delphinus



Pegasus

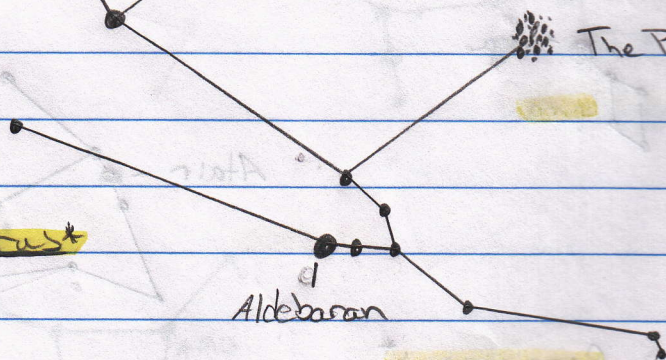
Capella

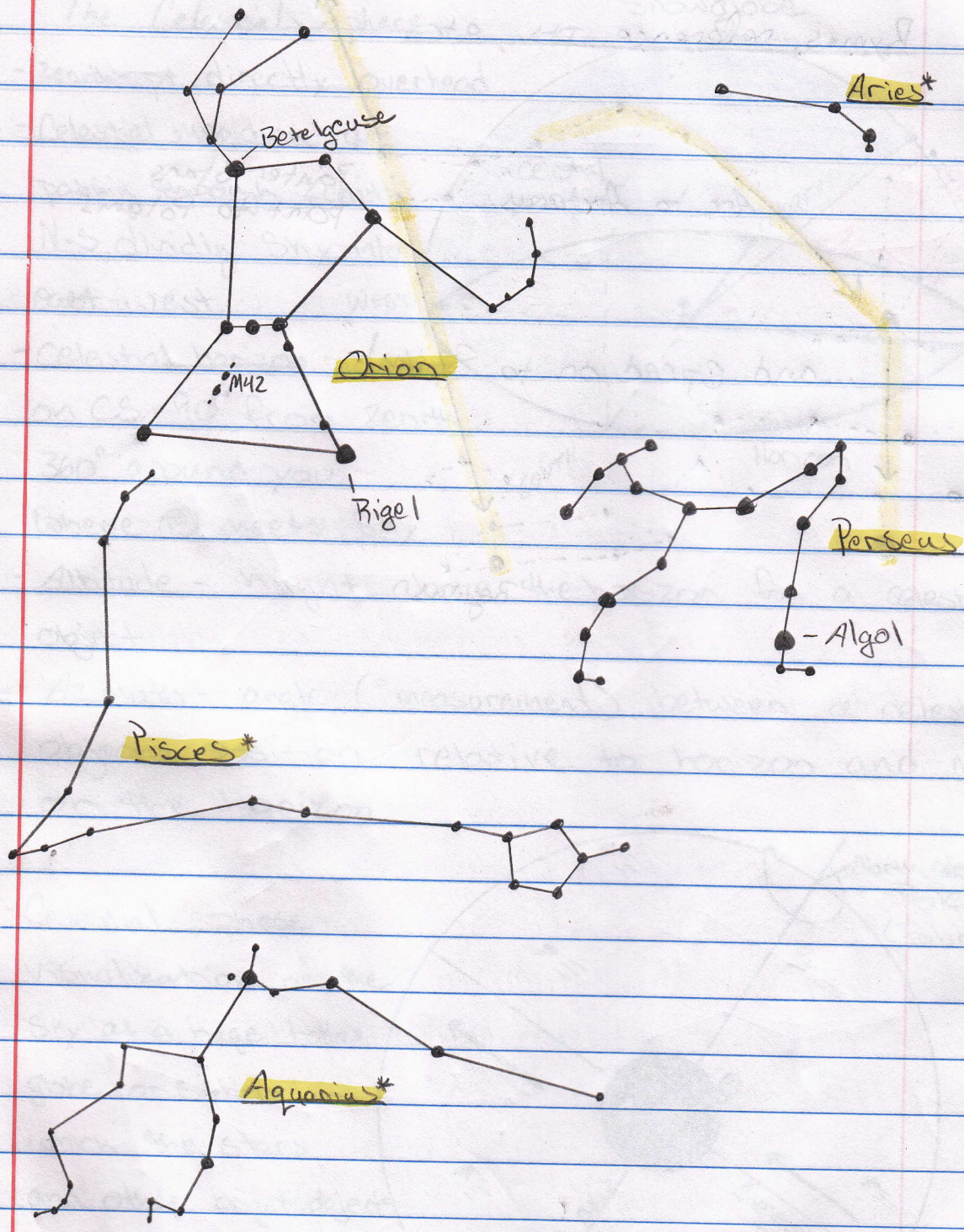
Auriga

The Pleiades

Taurus*

Aldebaran





The Celestial Sphere

- Zenith - pt. directly overhead

- Celestial meridian - arc passing through zenith, N-S, dividing sky into east-west.

- Celestial horizon - circle on CS. 90° from zenith, 360° around you -

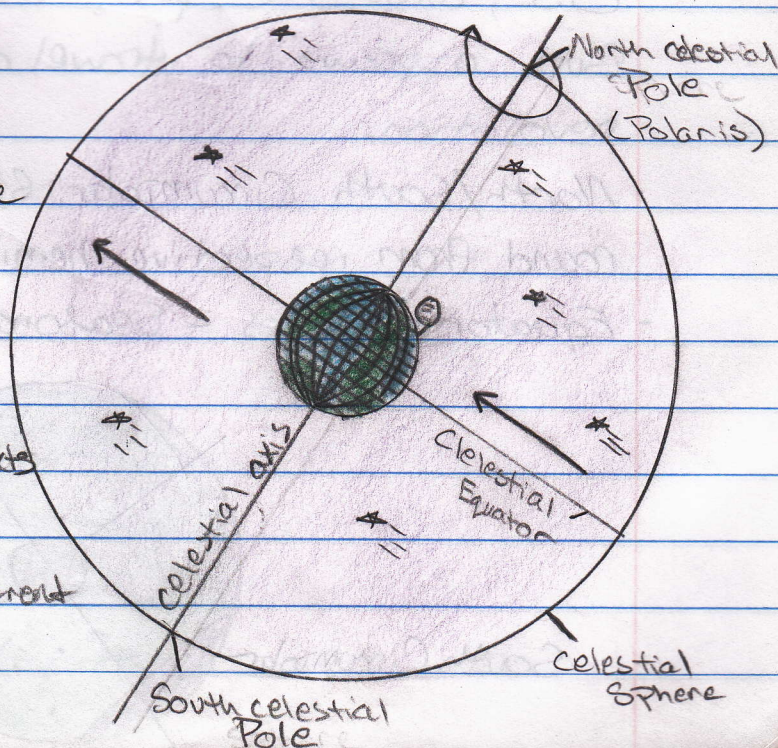
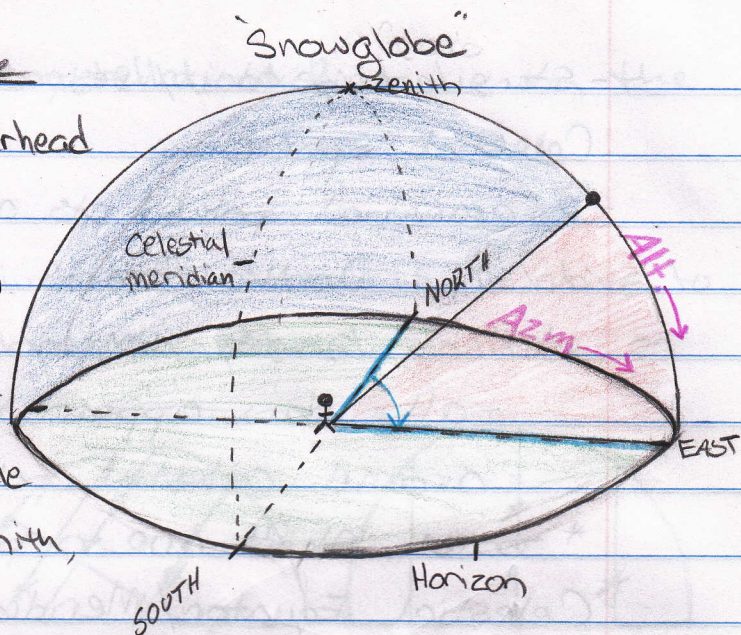
where \oplus meets sky

- Altitude - height above the horizon for a celestial object

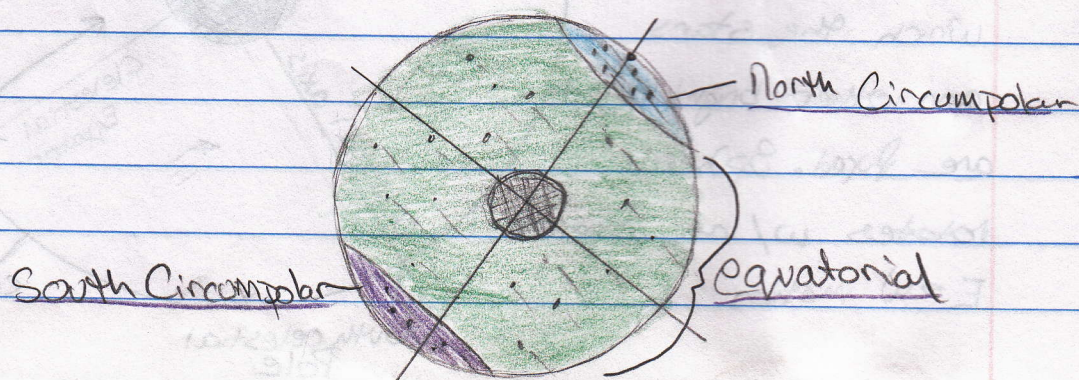
- Azimuth - angle ($^\circ$ measurement) between a celestial object's position relative to horizon and north on the horizon

- Celestial sphere -

Visualization of the sky as a huge hollow globe or sphere in which the stars and other bright objects are fixed. Sphere rotates w/ an apparent E \rightarrow W motion

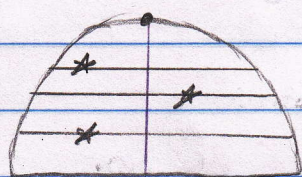


- Stars are fixed w/ respect to each other on Celestial Sphere
- 2 Celestial poles: pts. about which CS rotates
 - North - Polaris
 - South - empty
- all stars appear to move in circles around celestial poles
- * poles shift due to precession
- Celestial Equator/Meridian: projections of terrestrial equator and prime meridian onto C.S.
- Declination/Right Ascension - gridlines on C.S. that correspond to lat. long. respectively.
- Ecliptic - projection of \oplus -Sun plane onto C.S.; also the path through the stars the Sun appears to travel on due to \oplus 's revolution.
- North/South Circumpolar Stars - seen all year round from respective hemispheres - never set
- Equatorial Stars - Seasonal, rise/set stars

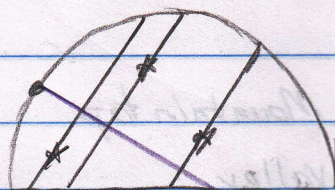


- Zodiac - 12/13 constellations that lie on the ecliptic

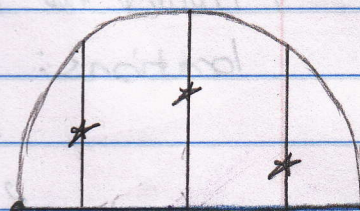
The apparent diurnal motion is relative to the observers location, primarily, latitude, on \oplus .



90° N



35° N



0°